



“An Analytical study and Econometric approach for constructional trade in india using statistical model”

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ABSTRACT

Constructional trade is one of the important parts of the Indian economy. India has undergone rapid transformation in the reform process. The policies of globalization and liberalization have opened up new avenues for Constructional trade. Due to its importance in national output and employment, Construction was paid special attention by India's policy makers. The main objective of this study is to examine the growth of Constructional trade of India and challenges before Constructional trade of India. In this study to fulfill these objectives I have used secondary data pre and post reform era. In this study used different statistical techniques such mean, CAGR and Independent t test for outcomes of the result. This study concluded that after the reform period several challenges have surfaced in Indian constructional trade which are becoming more and more severe with the passage of time as well as total Constructional trade share of India has more as compare to post reform period but in case of growth rate there has various ups and downs in total study period.

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Keywords: constructional Growth, Foreign trade, Export, Import, Reformation era.

1. INTRODUCTION

Construction sector is the dominant sector of Indian economy, which determines the growth and sustainability. About 16 % of the nation's working population depends on construction for its livelihood. The Indian construction industry employs over 30 million population and creates assets value over ₹ 200 billion. It contributes over 5 % to the nation's GDP and 78 % to the gross capital formation. Whereas that of different sectors, significantly services and has increased. In the recent decades, there are substantial changes within the pattern of production, supply and trade in Indian construction. One is the shift in production and Supply from high value constructional commodities such as silica sands and quartz sands, Gypsum- anhydrite- plasters (consisting of calcite gypsum or calcium sulphate) whether or not colored, with or without small quantities of accelerators or retarders, Gypsum-anhydrite Plasters, Limestone flux-limestone and other calcareous stones, of a kind used for the manufacture of lime or cement, Portland cement, aluminous cement, slag cement, supersulphate cement and similar hydraulic cements, whether or not coloured or in the form of clinkers Cement clinkers, Portland

cement: White cement, whether or not artificially coloured, Portland cement: Other Aluminous cement, Other hydraulic cements, Asbestos Mica, including splitting- mica waste, Iron ores and concentrates, including roasted iron pyrites, valuable metal ores and different ores and concentrates, Granulated slag (slag sand) from the manufacture of iron or steel Slag, dross (other than coarse slag), scaling and different waste from the manufacture of iron or steel, Ash and residues (different than from the manufacture of iron or steel), containing arsenic, metals or their compounds, different slag and ash, including seaweed ash (kelp)- ash and residues from the combustion of municipal waste, Ash and residues from the incineration of municipal waste, different Coal- briquettes, ovoid's and similar solid fuels manufactured from coal, Bitumen and asphalt, natural-bituminous or oil shale and tar sands- asphaltites and asphaltic rocks, Bituminous or oil shale and tar sands, Asphalt , naturals, Bitumen and other minerals, construction Equipment's etc. and re-import of air less spray painting machine (material export for construction activity on returnable basis under contract. India main imports are: mineral fuels, oils and waxes and hydrocarbon substances (27 % of total imports); pearls, precious and semi-precious stones and jewelry (14 %);



electrical machinery and equipment (10 %); nuclear reactors, boilers, machinery and mechanical appliances (8 %); and organic chemicals (4 %). India's major import partners are: China (16 % of total imports), the United States (6 %), United Arab Emirates (6 %), Saudi Arabia (5 %) and Switzerland (5 %).

Construction has been a part of foreign exchange for India in the past. These exports are dependent on domestic demand, government policy, and competitiveness of production in international market besides other factors affecting international trade. Constructional export has been the part of bone of India's export efforts and it was expected that its contribution would increase in future to propel India's export growth. The export growth depends not solely on domestic production and distribution state of affairs however conjointly on number of external factors like world economic situation, prices of Indian exports in relation to world prices, exchange rates, and inflation rates in comparing countries and taxes and subsidies on export and imports.

2. REVIEW OF LITERATURE

Dutta (1968) studies the trends in India's long term import capacity for the three plan periods covering 1950-51 to 1965-66. According to Dutta, India's import capacity exclusive of official loans and grants received from abroad is 7.1%, 30.5% and 46.1% for three plan periods respectively. The same for overall plan periods is 30.8%. The inclusion of different capital movements raised the level of import capacity to 92.90% for over all period. The position improved further with the inclusion of official loans and grants. Thus, over other capital movements official loans and grants accounted for an improvement in import capacity to the extent of 4.9% in first plan, 19.1% in second plan, 44.2% in the Third plan and 25.5% for overall plan period. **Arora (1977)** examines the Indo-Ghanaian trade, by distinctive issues and suggesting export prospects for elite Indian products. India's exports to Ghana are valued at Rs. 1.81 crore (1975-76), that contributed 0.4% of total imports into Ghana. Study provides an idea about the commodities under that India will push up well its exports to Ghana due to likely upsurge of industrial activity in country. The study period is 1971-72 to 1974-75. Major Indian merchandise exported to Ghana comprise engineering goods, textiles, chemicals and jute manufactures. In 1975-76, these four products groups accounted for 86.1% of India's total exports to Ghana.

India's main item of imports from Ghana is pearls, precious and semi-precious stones, which accounted for 86.2% of total during 1975-76. Besides this, India conjointly imported cocoa and industrial diamonds from Ghana in 1975-76. The study discusses that items of auto and auto parts, agricultural machinery and implements, bicycle and parts, diesel engines and parts, electric power and switchgears, medicinal and pharmaceutical products, pigments, paints and varnishes and Rubber tires and tubes have bigger export prospects for India to Ghana. As a result of these things, are exported to Ghana in larger amounts by different countries than India. **Obstfeld (1980)** studies the economic science effects of a rise within the price of an imported intermediate production input. The analysis includes a small open economy with a floating exchange rate and endogenous terms of trade, in which saving depends on residents (variable) rate of time preference. The conclusion indicates that when the price elasticity of demand for intermediates is near to zero, a surplus on current account, not a deficit, is almost certain to arise. High substitutability between domestic and foreign finished goods leads to sharper exchange rate depreciation in the long run than would otherwise be the case. Only when there is a significant degree of substitution between imported materials and domestically available factors and between finished imports and exports, it is possible for a current deficit and spot depreciation to occur simultaneously in response to a materials price shock. A key feature of the model is that prices are perfectly flexible, and so, free to share the burden of adjustment with the exchange rate. **Pitre (1981)** studies the trends in India's imports over the period 1960-61 to 1974-75. The study has made for time series of India's merchandise imports for assessing trends in real terms and classified imports into major economic classes to look at changes in composition of imports. In line with pitre, it's quantity of imports that has relevancy. For this purpose, he constructed a quantity index at an aggregate level, for which he expressed the quantities in different years in common units (i.e., rupee, by multiplying them with base year prices). The base year chosen is 1960-61 and these prices are used as weights for the construction of index. To view the changes in the composition of imports in terms of economic categories, all the imports have been classified into three major heads viz, (1) consumption goods (2) intermediate goods and (3) unclassified, with more breakdown into food, cereals and edible products, finished goods, iron and steel, non-



ferrous metals, total metals, raw materials and intermediates. In line with results, index of total imports shows a rise of 21%. This growth is marked by some fluctuations. The primary phase, that lasted until 1967-68, is characterized by steady increase in imports, whereas within the subsequent period the imports show an excellent deal of fluctuations. Imports under food and live animals recorded quite than 100% increase between 1960-61 and 1966-67, after this import started falling steeply. Imports under manufactured goods accounted for about 30% of the total import bill. Till 1970-71, a trend of general decline is observed. Among other commodity groups, those under mineral fuel, lubricants and related products, animal and vegetable oil and fats, chemicals increased in varying magnitudes. Spectacular increase in fertilizer imports is also observed. In line with economic subcategories, imports under intermediate goods reached at peak in 1972-73. It was higher by 55%. During last two years of study period imports under this category showed a decline. The index of imports under consumer material stood at upper level than corresponding indices for intermediate and capital goods.

3. STATEMENT OF RESEARCH PROBLEM

After the reform period there has been shifting changes in constructional trade of india. However the Policies of globalization and liberalization have opened up new avenues for construction modernization but several challenges have suffered in Indian construction in case of growth rate has turned lower than the growth in population as well as domestic prices of several commodities have turned higher than international prices. This study addresses the observed slow growth of the constructional sector and share is also minimize since 1991 as compare to the total trade of india.

4. OBJECTIVES OF THE STUDY

- To examine the growth of constructional trade in india.
- To study the challenges before constructional trade in India.
- To study the market growth size and reform framework.

5. HYPOTHESIS OF THE STUDY

H_0 : There is no significant growth of constructional trade of india in the post reform period than the pre reform period.

H_1 : There is significant growth of constructional trade of india in the post reform period than the pre reform period.

6. RESEARCH METHODOLOGY

The overall data used for this study have been obtained from the secondary sources. The data has consisted of constructional trade of india through the publication such as economic survey government of india, Handbook of statistics on the Indian economy, Reserved bank of india, Directorate of Economics and Statistics (DES), Ministry of construction industry development council (CIDC) etc. The secondary data collected in time series from year 1980-81 to 1990-91 and 1991-92 to 2014-15. The researcher has used different statistical tools such as Mean, Standard deviation, percentage shares and compound annual growth rate (CAGR) model for the data analysis and interpretation. The researcher has used Independent t test model for testing hypothesis for outcomes of the result.

7. RESULT AND DISCUSSION

In this paper researcher has classified into two parts, the data has been divided in constructional trade and challenges before constructional trade in india.

A. Total constructional trade of india pre reform period



Year	Total constructional trade	Total Volume Foreign trade	Percentage shares (%)
1991-92	8572.05 [22.16]	91892 [10.40]	9.33
1992-93	10549.46 [23.07]	117063 [27.39]	9.01
1993-94	13657.25 [29.46]	142852 [22.03]	9.56
1994-95	16861.82 [23.46]	172645 [20.86]	9.77
1995-96	23587.5 [39.89]	229031 [32.67]	10.30
1996-97	28672.27 [21.56]	257737 [12.53]	11.12
1997-98	30139.16 [5.12]	284276 [10.30]	10.60
1998-99	36006.73 [19.47]	318084 [11.89]	11.32
1999-2000	34774.27 [-3.47]	374797 [17.83]	9.28
2000-01	33881.39 [-2.57]	434444 [15.91]	7.80
2001-02	37888.59 [11.83]	454218 [4.55]	8.34
2002-03	44141.44 [16.50]	552343 [21.60]	7.99
2003-04	48735.83 [-2.28]	652475 [19.64]	7.47
2004-05	46755.36 [24.21]	589241 [23.78]	8.39

Source: Handbook of Statistics on the Indian economy, RBI, 1980-1990.

Table 1: Total constructional trade of india in pre reform period

Note: Bracket [] Values are Related to Annual Growth Rate of Commodity.

Table no. 1 shows that the total constructional trade of india in pre reform Period. The total trade share of construction has only 12.54 percent in total foreign trade as well as the growth rate has been ups and downs due to changing the trade scenario in the modernization of techniques. It also shows that there is very consistence growth with coefficient of variation 24.66 percent. The compound growth was 7.36 percent only in pre reform

Year	Total constructional trade	Total Volume Foreign trade	Percentage shares (%)
2005-06	5307.58 [10.33]	127123 [27.43]	7.36
2006-07	2946.84 [133.83]	1412285 [26.76]	7.44
2007-08	3532.30 [20.71]	214139 [18.82]	16.56
2008-09	3383.32 [20.45]	229139 [32.89]	14.67
2009-10	4509.35 [22.37]	2599270 [7.67]	15.54
2010-11	4473.64 [3.02]	2882689 [12.85]	15.33
2011-12	5634.56 [25.62]	4991422 [34.85]	18.54
2012-13	4628.49 [0.66]	3333961 [6.53]	14.32
2013-14	4799.42 [3.91]	3721666 [16.59]	24.96
2014-15	5388.36 [12.45]	4846675 [27.89]	7.98
Mean	5023.11 [5.32]	638968 [29.96]	6.65
SD	947.36 [23.64]	748954 [20.26]	14.48
CV	46.14 [10.37]	3697.47 [10.37]	12.54
SP	114.54 [4.54]	1846.81 [18.88]	-
CV	24.66	49.29	-
CAGR	7.36	13.87	-

period due to variable like less adequate technology, attitude of Suppliers.

Source: Handbook of Statistics on the Indian economy, RBI, 1991-2015.

Table: Total constructional trade of india in post reform period



Note: Bracket [] Values are Related to Annual Growth Rate of Commodity.

Table 2 gives the total constructional trade of india in total foreign trade of india in post reforms period. In the annual growth rate of constructional trade various ups and downs shows in the table due to the corresponding changes of the supply pattern and may be the storage of the constructional production. The total trade of constructional has minimizes as compare to total trade of india i.e. the total trade was Rs. 1357968 crore constructional trade Rs. 90243.11 crore with compound annual growth 18.88 and 14.24 % severally. Its also shows that only 6.65 percent share of constructional trade in total trade as well as there are vary inconsistence growths of constructional trade due to variation in data and shifted dramatically in post reform period.

B. Challenges before constructional trade in india

The above analysis point of view there is a significant growth in the constructional trade in india in the post reform period as compare to pre reform period. But the percentage share of the constructional trade has been decline in the post reform period hence there is need to find out the challenges before India's constructional trade. The following are the challenges have been found in the present study.

1. Sustainable and innovative Supply Chain management

Various innovative supply chain has been set up to meet the challenges of product shortage and poverty in india. In order to face the import and export challenges, new market control constructional trade. Similarly technology and smart contract system also digitalization.

2. Dependency on market size

Constructional Products in india is largely depend on market and therefore, heavily relies on market. Growth within the historic period resulted from strong economic progress in rising markets, low interest rates in most developed countries, increasing the demand for older friendly infrastructure and technological development. Factors that negatively affected growth within the historic period were geo-political tensions, and rising material costs.

3. Price fluctuations

The Demand constructional commodities in international market have systematically flexible. The construction industry is facing problem of price fluctuation in all of

its inputs. This major problem is spread all over the country and Nepalese contractors are critically affected. The overall objective of the analysis is to investigate the effect of price fluctuation for improving the financial capacity of Nepalese contractors to increase the performance of the industry. Questionnaire, scheduled and case studies were used to assess the contractor's perspective. The research result shows that the problem of price fluctuation occurs in an unpredictable manner.

4. Documentation Process

Import and export documents

Businesses are required to submit a collection of documents for finishing up export and import activities in India. These embody commercial documents – those changed between the buyer and seller, and restrictive documents that deal with various regulatory authorities like the customs, excise, licensing authorities, as well as the export promotion bodies that help avail export import benefits.

The Foreign Trade Policy, 2000-2015 mandates the following commercial documents for carrying out importing and exporting activities:

- Bill of lading or airway bill;
- Commercial invoice cum packing list;
- Shipping bill or bill of export, or bill of entry (for imports).

Additional documents such as certificate of origin and inspection certificate may be required as per the case. The important regulatory documents include:

- GST return forms (GSTR 1 and GSTR 2);
- GSTR refund form;
- Exchange Control Declaration;
- Bank Realization Certificate; and
- Registration cum Membership Certificate (RCMC).

5. Diversification of Market

The growth of the product and service portfolio offers a good chance for enterprises. However, the implementation of a diversification strategy needs a high financial effort. In addition to the financial burden, higher coordination money are also incurred. This means that it's no longer possible to react flexibly to market



changes. These risks are widely accepted by large corporations to expand their market power.

8. Hypothesis testing

H₀ : There is no significant growth of constructional trade of india in the post reform period than the pre reform period.

H₁ : There is significant growth of constructional trade of india in the post reform period than the pre reform period.

d. f. = Degree of freedom, S.D. = Standard deviation, p- value= Probability value

Table: Analysis of Independent two sample t- tests

At 5% level of significance the p- value of total constructional trade in the post reforms era as compared to pre reforms era corresponding to above t-statistics is 0.006 as well as the table value is less than calculated t-value hence the null hypothesis is rejected and alternative hypothesis is accepted which means there is significant growth construction trade of india in the post reform period than the pre reforms period.

9. Findings:

1. The total constructional trade share of india has only 12.54 percent in total foreign trade as well as the growth rate various ups and downs in pre reform period.
2. The total trade of constructional has minimize as compare to the total trade of india i.e. total trade was Rs. 1357968 crore and constructional trade Rs. 90243.11 crore with compound annual growth 18.88 and 14.24 percent respectively in post reform period.
3. After the reform period the total constructional trade share has been shows only 6.65 percent as compare to the pre reform period i.e. 12.54 percent.
4. It is observed that trade of constructional growth was very inconsistence in post reform period as compare to pre reform period due to diversification of the trade pattern.

10. Suggestions:

1. It is need for change in the supply chain pattern and construction based industries for production of Cement and steel to reduce that import of

commodities and government should provided appropriate facilities in the domestic market.

2. The share of constructional Foreign trade have been decreasing in export during reform period but it is understandable that the construction sector, insulated for long time from world market, so its need to be promoted this sectors through modernization, Revolution and construction based industrialization program and implanting them.
3. In india has a large potential to increase

Sr	Variables	Pre Means (S.D.)	Post Means (S.D.)	d. f.	P value	Tabl e value	Sig. (Two tailed)	Results
1	Total constructi-on trade volume	4,632.92 (1,412.52)	90,243.311 (96,765.76)	33	2.910	1.645	0.006	Rejected Ho

constructional exports so first it needs to undertake large infrastructure investment in constructional process industries and research development.

4. It should develop the distribution system in india to Improve constructional trading activity i.e. transportation, warehousing etc. to the importers and exporter of the state.

11. CONCLUSION REMARKS

The overall research paper has concluded that the constructional trade is different from other trades and plays a significant role in the economy development of a nation, India’s prosperity depends upon the constructional prosperity. There are many kinds o constructional products produce in india and the marketing of all this firm products generally tends to be a complex process. This is an indicate of this study constructional trade is very low compare to national foreign trade. The averagely constructional trade has been increasing the Reform period but as compare to pre reform period the share has declining in the post reform process. The constructional sector contribution is important for the india economy for making powerful and stable Indian economy.

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